



AF: 28344

PTO/SF 21 (03-03)

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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	09/848,032
	Filing Date	MAY 3, 2001
	First Named Inventor	THOMAS SCOTT GEE
	Art Unit	2834
	Examiner Name	JOSEPH WAKS
Total Number of Pages in This Submission	Attorney Docket Number	200-0325

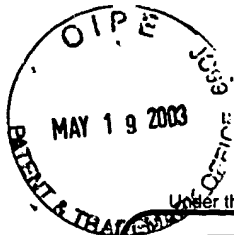
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Signature	
Date	MAY 15, 2003

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PTO/SB/17 (05-03)

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FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT

(\$ 320.00)

Complete if Known

Application Number	09/848,032
Filing Date	MAY 3, 2001
First Named Inventor	THOMAS SCOTT GEE
Examiner Name	JOSEPH WAKS
Art Unit	2834
Attorney Docket No.	200-0325

METHOD OF PAYMENT (check all that apply)☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None☒ Deposit Account:Deposit Account Number
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06-1510

FORD GLOBAL TECH. LLC

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☒ Charge fee(s) indicated below ☐ Credit any overpayments☐ Charge any additional fee(s) during the pendency of this application☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 750	2001 375	Utility filing fee	
1002 330	2002 165	Design filing fee	
1003 520	2003 260	Plant filing fee	
1004 750	2004 375	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	

SUBTOTAL (1) (\$)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent Claims	-20** =	X	
Multiple Dependent	-3** =	X	

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 84	2201 42	Independent claims in excess of 3
1203 280	2203 140	Multiple dependent claim, if not paid
1204 84	2204 42	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for <i>ex parte</i> reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 410	2252 205	Extension for reply within second month	
1253 930	2253 465	Extension for reply within third month	
1254 1,450	2254 725	Extension for reply within fourth month	
1255 1,970	2255 985	Extension for reply within fifth month	
1401 320	2401 160	Notice of Appeal	
1402 320	2402 160	Filing a brief in support of an appeal	\$320.00
1403 280	2403 140	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,300	2453 650	Petition to revive - unintentional	
1501 1,300	2501 650	Utility issue fee (or reissue)	
1502 470	2502 235	Design issue fee	
1503 630	2503 315	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 750	2809 375	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 750	2810 375	For each additional invention to be examined (37 CFR 1.129(b))	
1801 750	2801 375	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$ 320.00)

SUBMITTED BY

Name (Print/Type)

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(Attorney/Agent)

28,008

(Complete if applicable)

Telephone 734-214-7670

Signature

Date

MAY 15, 2003

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Thomas Scott Gee
Serial No. 09/848,032
Filed: May 3, 2001
For: FAIL SAFE ENGINE COOLING CONTROL ALGORITHM
FOR HYBRID ELECTRIC VEHICLES
Group Art Unit: 2834
Examiner: Joseph Waks
Attorney Docket No.: 200-0325

* * * * *
BRIEF ON APPEAL

Honorable Director of Patents
Washington, D.C. 20231

May 15, 2003

Sir:

1. Real Party In Interest

The real party in interest to this appeal is the named assignee, Ford Motor Company, Dearborn, Michigan 48121.

2. Related Appeals and Interferences

There are no other known appeals or interferences which would have a bearing on, or be influenced by, the present appeal.

750-12700 (REVISED 10/2002) 03/04/03
10/2002 200-00 01

3. Status of Claims

Claims 1-14 were initially presented to the examiner for consideration. In response to an Office Action dated 6/27/2002, Claims 1 – 14 were cancelled and Claims 15 – 18 were added. As a result of an Office Action dated November 15, 2002, independent Claims 15 and 18 were amended. Claims 15-18 are on appeal. They are reproduced in APPENDIX I.

4. Status of Amendments

A Request for Reconsideration was filed on March 13, 2003 in response to the final Office Action of January 16, 2003. According to an Advisory Action dated April 18, 2003, this Request for Reconsideration was considered but was deemed by the Examiner to fail to place the application in condition for allowance.

5. Summary of the Invention

The present invention provides a fail-safe engine cooling control method and system for a hybrid electric vehicle (HEV) when the engine temperature exceeds a predetermined calibratable level such as when a vehicle cooling system fails.

In the event of an overheating condition, the engine is shut off if sufficient traction battery power is available to run with the electric motor. In the further event, however, that the engine is overheated, AND the traction battery is depleted, the engine will be operated on alternating cylinders, so as to allow the vehicle to continue moving. Thus, it is seen that the vehicle is always available for operation, notwithstanding a dead traction battery and an overheated engine.

6. Issues to be Decided

Whether Claims 15 – 18 are properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Kitada et al (JP 406048189 A) in view of Gopp et al. (U.S. Patent No. 5,555,871).

7. Grouping of Claims

All claims stand or fall together.

8. Argument

The Examiner has rejected Claims 15 - 18 under 35 U.S. C. §103(a) as being unpatentable over Kitada et al (JP 406048189 A) in view of Gopp et al. (U.S. Patent No. 5,555,871). He asserts that “Kitada et al. disclose a hybrid vehicle comprising: an internal combustion engine 1, an electric traction motor 8, a storage battery 7, a battery charge state detector 6, an engine temperature sensor 5, a vehicle system controller 4, 9 receiving temperature and battery state of charge signal, an engine control unit 4 operating the engine in a fail-safe mode when the engine temperature exceeds a predetermined threshold and halting the engine and powering the vehicle solely with the traction motor if the battery state of charge is greater than a predetermined temperature (sic; emphasis is added) threshold. However, Kitada et al. do not disclose an engine controller operating the engine on alternating cylinders when the engine temperature exceeds the predetermined temperature threshold and the battery state of charge is less than the predetermined charge threshold.

Gropp (sic) et al. disclose the engine controller operating the engine on alternating cylinders when the engine temperature exceeds the predetermined temperature threshold for the purpose of protecting the engine from overheating under low load condition or the cooling system failure.”

The Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to design the hybrid vehicle as taught by Kitada et al. and to provide the engine controller operating the engine on alternating cylinders when the engine temperature exceeds the predetermined temperature threshold as taught by Gopp et al. for the purpose of protecting the engine from overheating when the traction motor cannot replace the engine because the battery state of charge is less than the predetermined charge threshold and is unable to feed the motor.

Although it is not known why the Examiner refers in the underscored language to a temperature threshold for the traction battery, his rejection is improper on this and other grounds and should be reversed because neither Kitada, nor Gopp, whether taken singly, or in combination, either teach or suggest the claimed invention.

As noted above, Applicant's system keeps the vehicle moving even when the battery is dead and the engine is overheated, by operating the engine on alternating cylinders. What do Kitada and Gopp teach? Kitada teaches shutting down the engine if the battery is dead and the engine is overheated. Gopp, which is assigned to the assignee of the present invention, teaches operating an engine on alternating cylinders if the engine is overheated, but is devoid of any reference to a hybrid vehicle having both electric and I.C. engine propulsion.

The problem with the Examiner's rejection is simple: Kitada teaches shutting down the engine during a condition (overheated engine & dead traction battery), wherein the Applicant maintains engine power by using alternating cylinder operation. Taken together, Kitada and Gopp are devoid of any teaching that this could or should be done. Rather, the Examiner has engaged in hindsight reconstruction of Applicant's invention by plucking from Gopp the idea of running an engine on alternating cylinders. This rejection is without merit and should not stand.

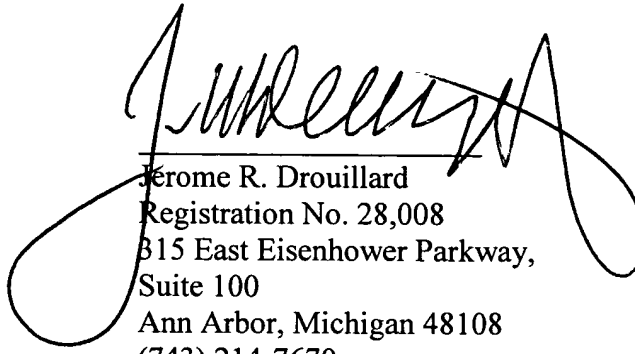
9. Conclusion

The Examiner's prior art rejection of Claims 15 – 18 should be reversed.

In accordance with 37 C.F.R. §1.192, this Appeal Brief is being filed in triplicate together with a Fee Transmittal for \$320.00.

Respectfully submitted,

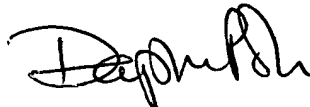
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Daphne Poh

APPENDIX I

15. A hybrid electric vehicle (HEV) comprising:

an internal combustion engine;

an electric traction motor;

a storage battery for furnishing power to the traction motor;

an engine temperature sensor;

a battery state of charge indicator;

a vehicle system controller (VSC) for receiving a temperature signal from the engine temperature sensor and a state of charge signal from the battery state of charge indicator;

and

an engine control unit operated by the VSC, with the engine control unit being directed to operate the engine in a fail-safe mode in the event that the engine temperature exceeds a predetermined temperature threshold, with said engine controller halting the engine and powering the vehicle solely with the traction motor if the battery state of charge is greater than a predetermined charge threshold, and with said engine controller operating the engine on alternating cylinders in the event that the engine temperature exceeds the predetermined temperature threshold and the battery state of charge is less than said predetermined charge threshold.

16. A fail-safe engine cooling system according to Claim 15, wherein said VSC directs the engine controller to operate the engine on alternating cylinders when the speed of the HEV exceeds a predetermined speed threshold and the engine temperature exceeds said predetermined temperature threshold.

17. A fail-safe engine cooling system according to Claim 15, wherein said VSC directs the engine controller to operate the engine on alternating cylinders when an air conditioning system incorporated in the HEV is operating and the engine temperature exceeds said predetermined temperature threshold. Claim 16 to read as follows:

18. A method for operating an engine in a hybrid electric vehicle having both an internal combustion engine and a traction motor, with said method comprising the steps of:
- measuring an operating temperature of the engine;
 - measuring a state of charge of an electric storage device connected to said traction motor;
 - and
 - in the event that said operating temperature exceeds a predetermined temperature threshold and said state of charge is less than a predetermined charge threshold, operating the engine on alternating cylinders so as to lower the operating temperature of the engine,
 - and in the further event that said operating temperature exceeds the predetermined temperature threshold and said state of charge is greater than the predetermined charge threshold, powering the vehicle solely with the traction motor.

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